

Contents lists available at ScienceDirect

Agricultural Water Management





Contents of Volume 97

VOLUME 97 ISSUE 1	JANUARY 2010
Review	
Could trunk diameter sensors be used in woody crops for irrigation scheduling? A review of current knowledge and future per M.F. Ortuño, W. Conejero (Espinardo (Murcia), Spain), F. Moreno, A. Moriana (Sevilla, Spain), D.S. Intrigliolo (Moncada Spain), C. Biel (Caldes de Montbui (Barcelona), Spain), C.D. Mellisho, A. Pérez-Pastor, R. Domingo (Cartagena (Murcia), M.C. Ruiz-Sánchez (Espinardo (Murcia), Spain and Cartagena (Murcia), Spain), J. Casadesus (Lleida, Spain), J. Bonany (Giro and A. Torrecillas (Espinardo (Murcia), Spain and Cartagena (Murcia), Spain)	(Valencia), ia), Spain), ona, Spain)
Research articles	
Maize yield response to deficit irrigation during low-sensitive growth stages and nitrogen rate under semi-arid climatic con C. Mansouri-Far, S.A.M. Modarres Sanavy and S.F. Saberali (Tehran, Iran) Estimating the potential of rainfed agriculture in India: Prospects for water productivity improvements	
B.R. Sharma (New Delhi, India), K.V. Rao (Hyderabad, India), K.P.R. Vittal (Jodhpur, India), Y.S. Ramakrishna (Hyderabad,	
U. Amarasinghe (New Delhi, India) A consolidated evaluation of the FAO-56 dual crop coefficient approach using the lysimeter data in the North China Plain	
Y. Liu and Y. Luo (Beijing, China)	31
S.E.A.T.M. van der Zee, S.H.H. Shah, C.G.R. van Uffelen, P.A.C. Raats and N. dal Ferro (Wageningen, Netherlands)	41
S. Khlifi, M. Ameur (Medjez el Bab, Tunisia), N. Mtimet (Zaghouan, Tunisia), N. Ghazouani (Medjez el Bab, Tunisia) and N. Bell Tunisia)	
Can carbon isotope discrimination and ash content predict grain yield and water use efficiency in wheat? S.C. Misra, S. Shinde (Pune, India), S. Geerts (Leuven, Belgium), V.S. Rao (Pune, India) and P. Monneveux (Mexico, Mexica An improved water use efficiency of cereals under temporal and spatial deficit irrigation in north China	0) 57
T. Du, S. Kang (Beijing, China), J. Sun (Xinxiang, China), X. Zhang (Shijiazhuang, China) and J. Zhang (Hong Kong, China) Towards using a thermal infrared index combined with water balance modelling to monitor sugarcane irrigation in a tropical en V. Lebourgeois (Saint-Denis, France), JL. Chopart (Saint-Pierre, France), A. Bégué (Montpellier, France) and L. Le Mézo (S	nvironment
France) Soil texture, climate and management effects on plant growth, grain yield and water use by rainfed maize—wheat cropping sy and simulation study	75
S.K. Jalota, S. Singh, G.B.S. Chahal (Ludhiana, India), S.S. Ray, S. Panigraghy (Ahmedabad, India), Bhupinder-Singh (Illinoi:	s, USA) and
K.B. Singh (Ludhiana, India) Simulation of automatic control of an irrigation canal	83
D. Lozano (Córdoba, Spain), C. Arranja, M. Rijo (Évora, Portugal) and L. Mateos (Córdoba, Spain)	91
R. Coffey, E. Cummins (Dublin, Ireland), N. Bhreathnach, V.O. Flaherty and M. Cormican (Galway, Ireland) Ontology-based simulation of water flow in organic soils applied to Florida sugarcane	10
HY. Kwon, S. Grunwald, H.W. Beck, Y. Jung (Gainesville, FL, USA), S.H. Daroub, T.A. Lang (Belle Glade, FL, USA) and I (Immokalee, FL, USA)	
Development and application of a modeling approach for surface water and groundwater interaction J. Cho (Blacksburg, VA, USA and Boise, ID, USA), S. Mostaghimi (Blacksburg, VA, USA) and M.S. Kang (Seoul, Republic of	Korea) 12:
Effects of soil water deficit on yield and quality of processing tomato under a Mediterranean climate	12
C. Patanè and S.L. Cosentino (Catania, Italy) Possible utilization of high-salinity waters and application of low amounts of water for production of the halophyte Kochia alternative fodder in saline agroecosystems	scoparia as
M. Kafi, H. Asadi and A. Ganjeali (Mashhad, Iran) Water uptake, water use efficiency, plant growth and ionic balance of wheat, barley, canola and chickpea plants on a sodic vovariable subsoil NaCl salinity	ertosol with
H.S. Grewal (Penrith South Australia)	14

South-eastern Spain	
J.G. Pérez-Pérez, J. García, J.M. Robles and P. Botía (Murcia, Spain) Effect of saline water irrigation and manure application on the available water content, soil salinity, and growth of wheat	157
B.A. Ould Ahmed, M. Inoue and S. Moritani (Tottori, Japan) Agronomic response and water productivity of almond trees under contrasted deficit irrigation regimes	165
G. Egea, P.A. Nortes, M.M. González-Real, A. Baille and R. Domingo (Cartagena, Spain)	171
Letters to the Editor	
Comments on "J. Vera et al., Soil water balance trial involving capacitance and neutron probe measurements" [Agric. Water Manage. 96 (2009) 905–911] S.R. Evett and R.C. Schwartz (Bushland, TX, USA)	103
Reply to Letter to the Editor by Drs. Evett and Schwartz J. Vera (Murcia, Spain)	182
J. Vera (Murcia, Spain)	185
VOLUME 97 ISSUE 2 FEBRUAR	Y 2010
Research articles	
Building a metamodel of an irrigation district distributed-parameter model S. Galelli, C. Gandolfi, R. Soncini-Sessa and D. Agostani (Milano, Italy)	187
Simulations of storm hydrographs in a mixed-landuse watershed using a modified TR-20 model T.I. Jang, H.K. Kim, S.J. Im and S.W. Park (Seoul, Republic of Korea)	201
Application of the relevance vector machine to canal flow prediction in the Sevier River Basin J. Flake, T.K. Moon, M. McKee and J.H. Gunther (Logan, UT, USA)	
Water requirements of maize in the middle Heihe River basin. China	208
W. Zhao, B. Liu and Z. Zhang (Lanzhou, China) An alternative to define canopy surface temperature bounds	215
P. Widmoser (Kiel, Germany)	224
Partial root-zone irrigation enhanced soil enzyme activities and water use of maize under different ratios of inorganic to organic nitrogen fertilizers	
F. Li, J. Yu, M. Nong (Nanning, China), S. Kang (Beijing, China) and J. Zhang (Hong Kong, China) Assessment of a groundwater quality monitoring network using vulnerability mapping and geostatistics: A case study from Heretaunga	231
Plains, New Zealand	240
H. Baalousha (Napier, New Zealand)	240
Alberta, Canada J. Miller, D. Chanasyk, T. Curtis, T. Entz and W. Willms (Alberto, Canada)	247
Evaluation of the flood mitigation effect of a Paddy Field Dam project N. Yoshikawa (Niigata, Japan), N. Nagao (Toyama, Japan) and S. Misawa (Niigata, Japan)	259
Carbon and nitrogen cycling in a tropical Brazilian soil cropped with sugarcane and irrigated with wastewater	200
R.M.P. Leal, L.P. Firme, U. Herpin (Piracicaba, Brazil), A.F. da Fonseca (Ponta Grossa, Brazil), C.R. Montes, C.T. dos Santos Dias and A.J. Melfi (Piracicaba, Brazil)	271
Simulation of nitrogen leaching from a fertigated crop rotation in a Mediterranean climate using the EU-Rotate_N and Hydrus-2D models	
J. Doltra and P. Muñoz (Barcelona, Spain) Usage of SUBSTOR model in potato yield prediction	277
M. Šťastná, F. Toman and J. Dufková (Brno, Czech Republic) Analyzing soil soluble phosphorus transport with root-phosphorus-uptake applying an inverse method	286
X. Zhu, Q. Zuo and J. Shi (Beijing, China) Prediction of annual reference evapotranspiration using climatic data	291
Y. Li (Yangling, China and Ames, IA, USA), R. Horton (Ames, USA), T. Ren (Beijing, China) and C. Chen (Urumqi, China)	300
Integrating remote sensing, census and weather data for an assessment of rice yield, water consumption and water productivity in the Indo-Gangetic river basin	
X.L. Cai (Battramulla, Sri Lanka) and B.R. Sharma (New Delhi, India)	309
Modelling point and diffuse source pollution of nitrate in a rural lowland catchment using the SWAT model Q.D. Lam, B. Schmalz and N. Fohrer (Kiel, Germany)	317
Comparison of soil water content and corn yield in furrow and conventional ridge sown systems in a semiarid region of China	
Y.H. Jin, D.W. Zhou and S.C. Jiang (Changchun, China) Influence of crop load on maximum daily trunk shrinkage reference equations for irrigation scheduling of early maturing peach trees	326
W. Conejero, M.F. Ortuño, C.D. Mellisho (Espinardo, Spain) and A. Torrecillas (Espinardo, Spain and Cartagena, Spain)	333
D.W. Nazer (Hebron, Palestine), A. Tilmant (Delft, The Netherlands), Z. Mimi (Ramallah, Palestine), M.A. Siebel, P. Van der Zaag	
(Delft, The Netherlands) and H.J. Gijzen (Jakarta, Indonesia)	339
N. Shrestha, S. Geerts, D. Raes (Heverlee, Belgium), S. Horemans, S. Soentjens (Tienen, Belgium), F. Maupas (Paris, France) and	
P. Clouet (Villette-sur-aube, France) Evapotranspiration and crop coefficient of <i>Populus euphratica Oliv</i> forest during the growing season in the extreme arid region north-	340
west China L.G. Hou, H.L. Xiao, J.H. Si, S.C. Xiao, M.X. Zhou and Y.G. Yang (Lanzhou, PR China)	35
The state of the s	33

Evaluation of the influence of irrigation methods and water quality on sugar beet yield and water use efficiency A.M. Hassanli (Shiraz, Iran and Australia), S. Ahmadirad (Shiraz, Iran) and S. Beecham (Australia)	257
Yield and olive oil characteristics of a low-density orchard (cv. Cordovil) subjected to different irrigation regimes	357
A.F. Ramos and F.L. Santos (Beja, Portugal)	363
VOLUME 97 ISSUE 3 MARCI	H 2010
Review Managing natural resources of watersheds in the semi-arid tropics for improved soil and water quality: A review	
K.L. Sahrawat, S.P. Wani, P. Pathak and T.J. Rego (Patancheru, India)	375
Research articles	
Greenhouse gas implications of water reuse in the Upper Pumpanga River Integrated Irrigation System, Philippines T.N. Maraseni, S. Mushtaq (Toowoomba, Australia), M. Hafeez (Wagga Wagga, Australia) and J. Maroulis (Toowoomba, Australia) Modeling the impact of alternative drainage practices in the northern Corn-belt with DRAINMOD-NII	382
W. Luo (Xi'an, China), G.R. Sands (St. Paul, MN, USA), M. Youssef (Raleigh, NC, USA), J.S. Strock (St. Paul, MN, USA), I. Song (Seoul, South Korea) and D. Canelon (St. Paul, MN, USA)	389
Developing a reliable strategy to infer the effective soil hydraulic properties from field evaporation experiments for agro-hydrological models	
K. Zhang, I.G. Burns, D.J. Greenwood, J.P. Hammond (Warwick, UK) and P.J. White (Dundee, UK) Evapotranspiration of an hedge-pruned olive orchard in a semiarid area of NE Spain A. Martínez-Cob and J.M. Faci (Zaragoza, Spain)	399 410
Photosynthesis, yield, and chemical composition of Tieguanyin tea plants (Camellia sinensis (L.) O. Kuntze) in response to irrigation treatments	410
X.H. Chen, C.G. Zhuang, Y.F. He, L. Wang, G.Q. Han (Fuzhou, China), C. Chen (Montana State, MT, USA) and H.Q. He (Fuzhou, China) Comparing soil moisture under trickle irrigation modeled as a point and line source	419
S. Elmaloglou, E. Diamantopoulos and N. Dercas (Athens, Greece) Oxyfertigation of a greenhouse tomato crop grown on rockwool slabs and irrigated with treated wastewater: Oxygen content dynamics and crop response	426
S. Bonachela, J. Quesada, R.A. Acuña, J.J. Magán (Almería, Spain) and O. Marfà (Barcelona, Spain)	433
S.E. El-Hendawy (Ismailia, Egypt) and U. Schmidhalter (Freising-Weihenstephan, Germany)	439
M. Previati, I. Bevilacqua, D. Canone, S. Ferraris and R. Haverkamp (Grugliasco, Italy) Potential productivity and water requirements of maize–peanut rotations in Australian semi-arid tropical environments—A crop simulation study	449
Y.S. Chauhan (Kingaroy, Australia) Field evaluation of Gee Passive Capillary Lysimeters for monitoring drainage in non-gravelly and gravelly alluvial soils: A useful tool to estimate nitrogen leaching from agriculture	457
M. Arauzo, J.J. Martínez-Bastida, M. Valladolid and J.A. Díez (Madrid, Spain)	465
P. Wang, X. Song, D. Han, Y. Zhang and X. Liu (Beijing, China)	475
T. Hama, K. Nakamura and S. Kawashima (Kyoto, Japan)	483
Book review	
Remote Sensing of Global Croplands for Food Security J.L. Chávez (Fort Collins, CO, USA)	490
VOLUME 97 ISSUE 4	RIL 2010
Special Issue on the Comprehensive Assessment of Water Management in Agriculture	
Guest Editors: David Molden and Charlotte de Fraiture	
Editorial	
Investing in water for food, ecosystems, and livelihoods	
B. Clothier, W. Dierickx, J.D. Oster, C.J. Perry and D. Wichelns	493
Research articles	
Investing in water for food, ecosystems, and livelihoods: An overview of the comprehensive assessment of water management in agriculture	
C. de Fraiture, D. Molden and D. Wichelns (Accra, Ghana)	495
Satisfying future water demands for agriculture C. de Fraiture and D. Wichelns (Colombo, Sri Lanka)	502
Managing water in agriculture for food production and other ecosystem services	
LL Cordon (Stockholm Sweden) CM Finlayson (Charles Sturt Australia) and M Falkenmark (Stockholm Sweden)	512

Agricultural water management and poverty linkages	
R.E. Namara (Accra, Ghana), M.A. Hanjra (Charles Sturt, Australia), G.E. Castillo (Novib, Netherlands), H.M. Ravnborg (Copenhagen,	620
Denmark), L. Smith (London, UK) and B. Van Koppen (Pretoria, South Africa) Improving agricultural water productivity: Between optimism and caution	520
D. Molden (Colombo, Sri Lanka), T. Oweis (Aleppo, Syria), P. Steduto (Rome, Italy), P. Bindraban (Wageningen, The Netherlands),	
M.A. Hanira (Charles Sturt, Australia) and J. Kijne (Iwmi, USA)	528
Managing water by managing land: Addressing land degradation to improve water productivity and rural livelihoods	
D. Bossio (Battaramulla, Sri Lanka), K. Geheb (Addis Ababa, Ethiopia) and W. Critchley (Amsterdam, The Netherlands)	536
J. Rockström, L. Karlberg (Stockholm, Sweden), S.P. Wani (Patancheru, India), J. Barron (Stockholm, Sweden), N. Hatibu (Nairobi,	
Kenya), T. Oweis, A. Bruggeman, J. Farahani (Aleppo, Syria) and Z. Qiang (Lanzhou, China)	543
Investing in irrigation: Reviewing the past and looking to the future	
H. Turral (Melbourne, Australia), M. Svendsen (USA) and J.M. Faures (Rome, Italy)	551
The challenges of wastewater irrigation in developing countries M. Qadir (Aleppo, Syria and Colombo, Sri Lanka), D. Wichelns (Hanover, IN, USA), L. Raschid-Sally (Accra, Ghana), P.G. McCornick (Colombo, Sri Lanka and Durham, NC, USA), P. Drechsel, A. Bahri (Accra, Ghana) and P.S. Minhas (New Delhi, India)	561
River basin closure: Processes, implications and responses	501
F. Molle (Montpellier, France), P. Wester (Wageningen, The Netherlands) and P. Hirsch (Sydney, Australia)	569
VOLUME 97 ISSUE 5	Y 2010
Reviews	
Improving water productivity in mixed crop-livestock farming systems of sub-Saharan Africa	
K. Descheemaeker, T. Amede (Addis Ababa, Ethiopia) and A. Haileslassie (Patancheru, India)	579
Modelling of the effect of dry periods on yielding of spring barley	507
W. Szulczewski, A. Żyromski, M. Biniak-Pieróg and A. Machowczyk (Wrocław, Poland)	587
December settler	
Research articles Comparative evaluation of phosphorus losses from subsurface and naturally drained agricultural fields in the Pike River watershed of	
Quebec, Canada M. Eastman, A. Gollamudi, N. Stämpfli, C.A. Madramootoo (Montreal, Canada) and A. Sarangi (New Delhi, India)	596
Soil salinity in Aceh after the December 2004 Indian Ocean tsunami M.K. McLeod, P.G. Slavich (Tamworth, Australia), Y. Irhas (Aceh, Indonesia), N. Moore (Tamworth, Australia), A. Rachman (Bogor,	330
Indonesia), N. Ali, T. Iskandar (Aceh, Indonesia), C. Hunt (Tamworth, Australia) and C. Caniago (Aceh, Indonesia).	605
Positive impact of regulated deficit irrigation on yield and fruit quality in a commercial citrus orchard [Citrus sinensis (L.) Osbeck, cv. salustiano]	000
I. García-Tejero, J.A. Jiménez-Bocanegra, G. Martínez, R. Romero, V.H. Durán-Zuazo and J.L. Muriel-Fernández (Sevilla, Spain) Investigating water availability for introducing an additional crop yield in dry season on hill land at Rubirizi, Rwanda	614
N. Kannan (Ruhengeri, Rwanda), T. Senthivel (Dindugal, India), A.J. Rayar and M. Frank (Ruhengeri, Rwanda)	623
Southern Ontario, Canada	
P.C. Sentelhas (Piracicaba, Brazil), T.J. Gillespie and E.A. Santos (Guelph, Canada)	635
Ten consecutive years of regulated deficit irrigation probe the sustainability and profitability of this water saving strategy in loquat J.J. Hueso and J. Cuevas (Almería, Spain)	645
Negotiating participatory irrigation management in the Indian Himalayas	043
V.S. Saravanan (Bonn, Germany)	651
Sustainability of tunnel wells in a changing agrarian context: A case study from South India	
K. Balooni, A.H. Kalro (Kozhikode, India) and A.G. Kamalamma (New Delhi, India)	659
Precision of soil moisture sensor irrigation controllers under field conditions	
B. Cardenas-Lailhacar and M.D. Dukes (Gainesville, FL, USA) Changes in spatial and temporal variability of SAR affected by shallow groundwater management of an irrigated field, California	666
P.J. Shouse, S. Goldberg, T.H. Skaggs (Riverside, CA, USA), R.W.O. Soppe (Griffith, Australia) and J.E. Ayars (Parlier, CA, USA)	673
Yield and quality response of drip irrigated broccoli (Brassica oleracea L var. italica) under different irrigation regimes, nitrogen	0/3
applications and cultivation periods T. Erdem, L. Arın, Y. Erdem, S. Polat, M. Deveci, H. Okursoy and H.T. Gültas(Tekirdağ, Turkey)	681
Response of citrus trees to deficit irrigation during different phenological periods in relation to yield, fruit quality, and water productivity I. García-Tejero, R. Romero-Vicente, J.A. Jiménez-Bocanegra, G. Martínez-García, V.H. Durán-Zuazo and J.L. Muriel-Fernández (Sevilla,	001
Spain)	689
H. Li and M. Li (Changsha, China)	700
S. Traore, YM. Wang and T. Kerh (Pingtung, Taiwan) Evapotranspiration, crop coefficient and growth of two young pomegranate (Punica granatum L.) varieties under salt stress	707
P. Bhantana and N. Lazarovitch (Negev, Israel)	715
Effects of Treflan injection on winter wheat growth and root clogging of subsurface drippers	/13
Y. Yu, G. Shihong, D. Xu, W. Jiandong and X. Ma (Beijing, PR China)	723
Assessing yield optimization and water reduction potential for summer-sown and spring-sown maize in Pakistan	
M.A. Iqbal (Faisalabad, Pakistan), G. Bodner, L.K. Heng, J. Eitzinger (Vienna, Austria) and A. Hassan (Faisalabad, Pakistan)	731

Synthetic and organic mulching and nitrogen effect on winter wheat (Triticum aestivum L.) in a semi-arid environment D. Chakraborty, R.N. Garg, R.K. Tomar, R. Singh, S.K. Sharma, R.K. Singh, S.M. Trivedi, R.B. Mittal, P.K. Sharma and K.H. Kamble (New	
Delhi, India)	738
Comparative evaluation of SCS-CN-inspired models in applications to classified datasets R.K. Sahu (Samastipur, India), S.K. Mishra (Roorkee, India) and T.I. Eldho (Mumbai, India)	749
Nitrogen and phosphorous concentrations in runoff from a purple soil in an agricultural watershed	
J.G. Han (Jiangsu, China), Z.B. Li, P. Li and J.L. Tian (Shaanxi, China) Effect of three irrigation regimes on Arbequina olive oil produced under Tunisian growing conditions	757
S. Dabbou (Monastir, Tunisia), H. Chehab (Sousse, Tunisia), B. Faten, S. Dabbou (Monastir, Tunisia), S. Esposto, R. Selvaggini, A. Taticchi, M. Servili, G.F. Montedoro (Perugia, Italy) and M. Hammami (Monastir, Tunisia)	763
Soil water dynamics and water use efficiency in spring maize (<i>Zea mays</i> L.) fields subjected to different water management practices on the Loess Plateau, China Y. Liu (Yangling, China and Wuhan, China), S. Li (Yangling, China), F. Chen (Wuhan, China), S. Yang and X. Chen (Yangling, China)	
r. Liu (rangling, China and Wunan, China), S. Li (rangling, China), F. Chen (Wunan, China), S. rang and X. Chen (rangling, China)	769
VOLUME 97 ISSUE 6	E 2010
Research articles	
Salinity's influence on boron toxicity in broccoli: I. Impacts on yield, biomass distribution, and water use	
T.E. Smith, S.R. Grattan (Davis, CA, USA), C.M. Grieve, J.A. Poss and D.L. Suarez (Riverside, CA, USA) Salinity's influence on boron toxicity in broccoli: II. Impacts on boron uptake, uptake mechanisms and tissue ion relations T.E. Smith, S.R. Grattan (Davis, CA, USA), C.M. Grieve, J.A. Poss and D.L. Suarez (Riverside, CA, USA)	777
Stochastic efficiency analysis of deficit irrigation with standard risk aversion B. Grove and L.K. Oosthuizen (South Africa)	783 792
Using an ADCP to determine canal seepage loss in an irrigation district	192
KD. Kinzli (Fort Collins, CO, USA), M. Martinez (Albuquerque, NM, USA), R. Oad (Fort Collins, CO, USA), A. Prior (Windsor, CO, USA) and	001
D. Gensler (Albuquerque, NM, USA)	801
T.L. Nordblom (Wagga Wagga, Australia), B.P. Christy (Victoria, Australia), J.D. Finlayson (Orange, Australia), A.M. Roberts (Victoria,	
Australia) and J.A. Kelly (Tamworth, Australia)	811
A. Bonton (Québec, Canada), A. Rouleau (Chicoutimi, Canada), C. Bouchard and M.J. Rodriguez (Québec, Canada)	824
Furrow diking in conservation tillage C.C. Truman (Tifton, GA, USA) and R.C. Nuti (Dawson, GA, USA)	835
Effects of tied ridges and mulch on barley (Hordeum vulgare) rainwater use efficiency and production in Northern Ethiopia	033
A. Araya (Mekelle, Ethiopia) and L. Stroosnijder (Wageningen, The Netherlands)	841
Differential evolution algorithm for solving multi-objective crop planning model J. Adeyemo and F. Otieno (Durban, South Africa)	848
Seasonal and interannual variations in water vapor exchange and surface water balance over a grazed steppe in central Mongolia	0.57
S. Liu, S.G. Li, G.R. Yu (Beijing, China), J. Asanuma, M. Sugita (Tsukuba, Japan), L.M. Zhang, Z.M. Hu and Y.F. Wei (Beijing, China) An index of soil drought intensity and degree: An application on corn and a comparison with CWSI	857
J. Chen, L. Lin and G. Lü (Wuhan, China)	865
Water pollution by intensive brackish shrimp farming in south-east Vietnam: Causes and options for control P.T. Anh (Ho Chi Minh city, Viet Nam and Wageningen, The Netherlands), C. Kroeze, S.R. Bush and A.P.J. Mol (Wageningen, The	
Netherlands)	872
Effect of flushing frequency on emitter clogging in microirrigation with effluents	
J. Puig-Bargués, G. Arbat, M. Elbana, M. Duran-Ros (Girona, Spain), J. Barragán (Lleida, Spain), F.R. de Cartagena (Girona, Spain) and F.R. Lamm (Colby, KS, USA)	883
Optimal on-farm irrigation scheduling with a seasonal water limit using simulated annealing	
P.D. Brown, T.A. Cochrane and T.D. Krom (Christchurch, New Zealand) Irrigation performance before and after rehabilitation of a representative, small irrigation scheme besides the Senegal River, Mauritania	892
L. Mateos, D. Lozano (Cordoba, Spain), A.B.O. Baghil (Nouakchott, Mauritania), O.A. Diallo (Kaédi, Mauritania),	
H. Gómez-Macpherson (Cordoba, Spain), J. Comas (Barcelona, Spain) and D. Connor (Victoria, Australia)	901
P.J. Correia, F. Gama, M. Pestana (Faro, Portugal) and M.A. Martins-Loução (Lisboa, Portugal)	910
Particle-size effects on soil temperature, evaporation, water use efficiency and watermelon yield in fields mulched with gravel and sand in semi-arid Loess Plateau of northwest China	
Z. Xie, Y. Wang, G. Cheng (Lanzhou, China), S.S. Malhi, C.L. Vera (Saskatchewan, Canada), Z. Guo and Y. Zhang (Lanzhou, China) Mapping agricultural responses to water supply shocks in large irrigation systems, southern India	917
T.W. Biggs (San Diego, CA, USA), P.G. Rao (Patancheru, India and Victoria, Australia) and L. Bharati (Jawalakhel, Nepal)	924
Short communication	
Determining the disaggregated economic value of irrigation water in the Musi sub-basin in India	023
P. Hellegers (The Hague, The Netherlands) and B. Davidson (Parkville, Australia)	933
VOLUME 97 ISSUE 7	LY 2010
Research articles	
Ancillary data supply strategies for improvement of temperature-based ET _o ANN models P. Martí and M. Gasque (Valencia, Spain)	939

application to achieve regulated deficit irrigation	
C. Acevedo-Opazo, S. Ortega-Farias (Talca, Chile) and S. Fuentes (Glen Osmond, Australia)	956
Y. Singh, S.S. Rao and P.L. Regar (Pali-Marwar, India)	965
Strategies to decrease water drainage and nitrate emission from soilless cultures of greenhouse tomato D. Massa, L. Incrocci, R. Maggini, G. Carmassi (Pisa, Italy), C.A. Campiotti (Rome, Italy) and A. Pardossi (Pisa, Italy) Response of soybean genotypes to different irrigation regimes in a humid region of the southeastern USA	971
A. Garcia y Garcia, T. Persson, L.C. Guerra and G. Hoogenboom (Griffin, GA, USA) Response of vanilla (Vanilla planifolia A.) intercropped in arecanut to irrigation and nutrition in humid tropics of India	981
S. Sujatha and R. Bhat (Vittal, India) Effect of N-enriched co-compost on transpiration efficiency and water-use efficiency of maize (Zea mays L.) under controlled irrigation N. Adamtey, O. Cofie (Accra, Ghana), K.G. Ofosu-Budu, J. Ofosu-Anim, K.B. Laryea (Legon, Ghana) and D. Forster (Dübendorf,	988
Switzerland) Optimal utilisation of natural resources for agricultural sustainability in rainfed hill plateaus of Orissa	995
D. Panigrahi, P.K. Mohanty, M. Acharya (Bhubaneswar, India) and P.C. Senapati (Gangtok, India) Assessing the performance of participatory irrigation management over time: A case study from Turkey	1006
Ö.K. Uysal and E. Atış (İzmir, Turkey) An evaluation of the net radiation sub-model in the ASCE standardized reference evapotranspiration equation: Implications for evapotranspiration prediction	1017
J.M. Blonquist Jr. (Logan, UT, USA), R.G. Allen (Kimberly, ID, USA) and B. Bugbee (Logan, UT, USA) Sensitivity of groundwater recharge under irrigated agriculture to changes in climate, CO ₂ concentrations and canopy structure	1026
D.L. Ficklin (Davis, CA, USA), E. Luedeling (Davis, CA, USA and Nairobi, Kenya) and M. Zhang (Davis, CA, USA) SWAP, CropSyst and MACRO comparison in two contrasting soils cropped with maize in Northern Italy A. Bonfante, A. Basile (Ercolano, Italy), M. Acutis (Milano, Italy), R. De Mascellis (Ercolano, Italy), P. Manna, A. Perego (Milano, Italy)	1039
and F. Terribile (Portici, Italy)	1051
Soil water recharge in a semi-arid temperate climate of the Central U.S. Great Plains P. Grassini, J. You, K.G. Hubbard and K.G. Cassman (Lincoln, NE, USA)	1063
Numerical simulations of water movement in a subsurface drip irrigation system under field and laboratory conditions using HYDRUS-2D M.M. Kandelous and J. Šimůnek (Riverside, CA, USA) Assessing grain crop water productivity of China using a hydro-model-coupled-statistics approach. Part I: Method development and	1070
validation	
F. Huang and B. Li (Beijing, PR China) Comparison of different irrigation methods based on the parametric evaluation approach in Dosalegh plain: Iran M. Albaji (Ahwaz, Iran), A. Shahnazari (Sari, Iran), M. Behzad, A. Naseri, S. BoroomandNasab and M. Golabi (Ahwaz, Iran)	1077
VOLUME 97 ISSUE 8	T 2010
Special Issue: Crop water use efficiency at multiple scales	
Guest Editors: Timothy R. Green, Qiang Yu, Liwang Ma and Tian-Duo Wang	
Crop-water use efficiency at multiple scales T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai China)	1000
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China),	1099
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA).	1099
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China)	
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China	1102
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi,	1102 1117 1126
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat-summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu	1102 1117 1126 1133
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China) and Xi'an, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat-summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu (Shijiazhuang, China and Beijing, China) and X. Zhang (Shijiazhuang, China). Evaluating the Crop Water Stress Index and its correlation with latent heat and CO ₂ fluxes over winter wheat and maize in the North	1102 1117 1126
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat-summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu (Shijiazhuang, China and Beijing, China) and X. Zhang (Shijiazhuang, China) Evaluating the Crop Water Stress Index and its correlation with latent heat and CO ₂ fluxes over winter wheat and maize in the North China plain L. Li (Beijing, PR China), D.C. Nielsen (Akron, CO, USA), Q. Yu (Beijing, PR China), L. Ma and L.R. Ahuja (Fort Collins, CO, USA)	1102 1117 1126 1133
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China and Xi'an, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat-summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu (Shijiazhuang, China and Beijing, China) and X. Zhang (Shijiazhuang, China) Evaluating the Crop Water Stress Index and its correlation with latent heat and CO ₂ fluxes over winter wheat and maize in the North China plain L. Li (Beijing, PR China), D.C. Nielsen (Akron, CO, USA), Q. Yu (Beijing, PR China), L. Ma and L.R. Ahuja (Fort Collins, CO, USA) Water-use efficiency and physiological responses of maize under partial root-zone irrigation F. Li, C. Wei (Guangxi, China), F. Zhang (Shaanxi, China), J. Zhang (Hong Kong, China), M. Nong (Guangxi, China) and S. Kang (Beijing, China)	1102 1117 1126 1133 1139
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandhai, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China). Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China). Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China and Xi'an, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat—summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu (Shijiazhuang, China and Beijing, China) and X. Zhang (Shijiazhuang, China) Evaluating the Crop Water Stress Index and its correlation with latent heat and CO ₂ fluxes over winter wheat and maize in the North China plain L. Li (Beijing, PR China), D.C. Nielsen (Akron, CO, USA), Q. Yu (Beijing, PR China), L. Ma and L.R. Ahuja (Fort Collins, CO, USA) Water-use efficiency and physiological responses of maize under partial root-zone irrigation F. Li, C. Wei (Guangxi, China), F. Zhang (Shaanxi, China), J. Zhang (Hong Kong, China), M. Nong (Guangxi, China) and S. Kang (Beijing, China)	1102 1117 1126 1133 1139
T.R. Green (Fort Collins, CO, USA), Q. Yu (Fort Collins, CO, USA and Beijing, China), L. Ma (Fort Collins, CO, USA) and TD. Wang (Shanghai, China) Water resources and water use efficiency in the North China Plain: Current status and agronomic management options Q.X. Fang (Shandong, China), L. Ma, T.R. Green (Fort Collins, CO, USA), Q. Yu (Sydney, Australia and China), T.D. Wang (Shanghai, China) and L.R. Ahuja (Fort Collins, CO, USA). Water use efficiency and associated traits in winter wheat cultivars in the North China Plain X. Zhang, S. Chen, H. Sun, Y. Wang and L. Shao (Shijiazhuang, PR China) Effects of winter wheat row spacing on evapotranpsiration, grain yield and water use efficiency S. Chen, X. Zhang, H. Sun (Hebei, China), T. Ren (Beijing, China) and Y. Wang (Hebei, China) Soil water dynamics and deep soil recharge in a record wet year in the southern Loess Plateau of China W. Liu (Shaanxi, PR China), XC. Zhang (El Reno, OK, USA), T. Dang (Shaanxi, PR China), Z. Ouyang (Beijing, PR China), Z. Li (Shaanxi, PR China), J. Wang (Shaanxi, PR China and Xi'an, PR China), R. Wang and C. Gao (Shaanxi, PR China) Effect of precipitation change on water balance and WUE of the winter wheat-summer maize rotation in the North China Plain H. Sun, Y. Shen (Shijiazhuang, China), Q. Yu (Beijing, China), G.N. Flerchinger (Boise, ID, USA), Y. Zhang (Canberra, Australia), C. Liu (Shijiazhuang, China and Beijing, China) and X. Zhang (Shijiazhuang, China) Evaluating the Crop Water Stress Index and its correlation with latent heat and CO ₂ fluxes over winter wheat and maize in the North China plain L. Li (Beijing, PR China), D.C. Nielsen (Akron, CO, USA), Q. Yu (Beijing, PR China), L. Ma and L.R. Ahuja (Fort Collins, CO, USA) Water-use efficiency and physiological responses of maize under partial root-zone irrigation F. Li, C. Wei (Guangxi, China), F. Zhang (Shaanxi, China), J. Zhang (Hong Kong, China), M. Nong (Guangxi, China) and S. Kang (Beijing, China)	1102 1117 1126 1133 1139

Responses of crop yield and water use efficiency to climate change in the North China Plain	
R. Guo, Z. Lin, X. Mo and C. Yang (Beijing, China)	1185
Crop yield responses to climate change in the Huang-Huai-Hai Plain of China S. Liu, X. Mo, Z. Lin, Y. Xu, J. Ji, G. Wen (Beijing, China) and J. Richey (Seattle, WA, USA)	1195
Simulation of soil water in space and time using an agro-hydrological model and remote sensing techniques	
U.K. Singh, L. Ren and S. Kang (Beijing, China) Combining an ecological model with remote sensing and GIS techniques to monitor soil water content of croplands with a monsoon	1210
climate W. Ju, P. Gao, J. Wang, Y. Zhou and X. Zhang (Nanjing, China)	1221
VOLUME 97 ISSUE 9 SEPTEMBEI	2010
Review	
Use of treated municipal wastewater in irrigated agriculture—Review of some practices in Spain and Greece	
F. Pedrero (Murcia, Spain), I. Kalavrouziotis (Agrinion, Greece), J.J. Alarcón (Murcia, Spain), P. Koukoulakis (Agrinion, Greece) and	
T. Asano (Davis, CA, USA)	1233
Research Papers	
Modelling uptake of Na+ and Cl- by tomato in closed-cycle cultivation systems as influenced by irrigation water salinity	
H. Varlagas, D. Savvas, G. Mouzakis, C. Liotsos, I. Karapanos and N. Sigrimis (Athens, Greece)	1242
A package of water management practices for sustainable growth and improved production of vegetable crop in labour and water scarce Sub-Saharan Africa	
J.S. Pachpute (Pretoria, South Africa)	1251
Assessing grain crop water productivity of China using a hydro-model-coupled-statistics approach. Part II: Application in breadbasket basins of China	
F. Huang and B. Li (Beijing, PR China)	1259
Evaluation of yield and physiological attributes of high-yielding rice varieties under aerobic and flood-irrigated management practices in mid-hills ecosystem	
D.P. Patel, A. Das, G.C. Munda, P.K. Ghosh, J.S. Bordoloi and M. Kumar (Shillong, India)	1269
Optimizing the rate and timing of phosphogypsum application to magnesium-affected soils for crop yield and water productivity enhancement	
F. Vyshpolsky, K. Mukhamedjanov, U. Bekbaev, S. Ibatullin (Taraz, Kazakhstan), T. Yuldashev (Tashkent, Uzbekistan), A.D. Noble	
(Vientiane, Lao People's Democratic Republic), A. Mirzabaev (Tashkent, Uzbekistan), A. Aw-Hassan (Aleppo, Syria)) and M. Qadir	4000
(Aleppo, Syria and Colombo, Sri Lanka)	1277
S. Lovelli, M. Perniola, T. Di Tommaso (Potenza, Italy), D. Ventrella (Bari, Italy), M. Moriondo (Florence, Italy) and M. Amato (Potenza,	4205
Italy)	1287
M.V. Cuevas, J.M. Torres-Ruiz (Seville, Spain), R. Álvarez, M.D. Jiménez, J. Cuerva (Lepe, Spain) and J.E. Fernández (Seville, Spain)	1293
Effects of drip irrigation with saline water on waxy maize (Zea mays L. var. ceratina Kulesh) in North China Plain Y. Kang, M. Chen and S. Wan (Beijing, China)	1303
Canopy temperature based system effectively schedules and controls center pivot irrigation of cotton	1303
S.A. O'Shaughnessy and S.R. Evett (Bushland, TX, USA)	1310
The hydroponic production of lettuce (Lactuca sativa L) by using hybrid catfish (Clarias macrocephalus × C. gariepinus) pond water: Potentials and constraints	
D.C. Sikawa and A. Yakupitiyage (Pathumthani, Thailand)	1317
Designing contracts for irrigation water under asymmetric information: Are simple pricing mechanisms enough? D. Viaggi, M. Raggi, F. Bartolini and V. Gallerani (Bologna, Italy)	1326
The changing profile of water traders in the Goulburn-Murray Irrigation District, Australia	1320
S. Wheeler (Adelaide, Australia), H. Bjornlund (Adelaide, Australia and Alberta, Canada), A. Zuo and M. Shanahan (Adelaide,	
Australia)	1333
Nutrient management adaptation for dryland maize yields and water use efficiency to long-term rainfall variability in China X. Wang, K. Dai, Y. Wang, X. Zhang, Q. Zhao, X. Wu, D. Cai (Beijing, China), W.B. Hoogmoed and O. Oenema (Wageningen,	124
The Netherlands)	1344
P. Droogers, W.W. Immerzeel (Wageningen, The Netherlands) and I.J. Lorite (Cordoba, Spain)	1351
Impact of temperature increase on the yield of winter wheat at low and high altitudes in semiarid northwestern China G. Xiao (Yinchuan, China and Lanzhou, China)	1360
Morphological quality of sweet corn (Zea mays L.) ears as response to soil moisture tension and phosphate fertilization in Campeche, Mexico	2500
B. Rivera-Hernández (Tabasco, Mexico), E. Carrillo-Ávila (Campeche, Mexico), J.J. Obrador-Olán, J.F. Juárez-López and L.A. Aceves-Navarro	
(Tabasco, Mexico)	1365
Chickpea water use efficiency in relation to cropping system, cultivar, soil nitrogen and Rhizobial inoculation in semiarid environments	
Y.T. Gan (Swift Current, Canada), T.D. Warkentin (Saskatoon, Canada), D.J. Bing (Lacombe, Canada), F.C. Stevenson (Saskatoon, Canada) and C.L. McDonald (Swift Current, Canada)	1375
Validation of a root water uptake model to estimate transpiration constraints	
D. Casaroli, Q. de Jong van Lier and D. Dourado Neto (Piracicaba, Brazil)	138

Numerical assessment of effective evapotranspiration from maize plots to estimate groundwater recharge in lowlands M. Mastrocicco (Ferrara, Italy), N. Colombani (Ferrara, Italy and Roma, Italy), E. Salemi and G. Castaldelli (Ferrara, Italy)	1389
Water savings in irrigated potato production by varying hill-furrow or bed-furrow configuration T.E. Harms and M.N. Konschuh (Alberta, Canada)	1399
Effects of different emitter space and water stress on yield and quality of processing tomato under semi-arid climate conditions A. Ozbahce and A.F. Tari (Konya, Turkey)	1405
VOLUME 97 ISSUE 10 OCTOBER	2010
A universal agro-hydrological model for water and nitrogen cycles in the soil-crop system SMCR_N: Critical update and further validation K. Zhang, D.J. Greenwood, W.P. Spracklen, C.R. Rahn, J.P. Hammond (Warwick, UK), P.J. White (Dundee, UK) and I.G. Burns (Warwick, UK)	1411
Quality of groundwater for irrigation in tropical karst environment: The case of Yucatán, Mexico C. Delgado, J. Pacheco, A. Cabrera, E. Batllori, R. Orellana (Yucatán, Mexico) and F. Bautista (Michoacán, Mexico)	1423
Coping with drought in irrigated South India: Farmers' adjustments in Nagarjuna Sagar JP. Venot (Accra, Ghana), V.R. Reddy (Hyderabad, India) and D. Umapathy (Chennai, India)	1434
Rising water table: A threat to sustainable agriculture in an irrigated semi-arid region of Haryana, India A. Singh (Kharagpur, India), P. Krause (Jena, Germany), S.N. Panda (Kharagpur, India) and WA. Flugel (Jena, Germany)	1443
Plant response to evapotranspiration and soil water sensor irrigation scheduling methods for papaya production in south Florida K.W. Migliaccio, B. Schaffer, J.H. Crane (Homestead, FL, USA) and F.S. Davies (Gainesville, FL, USA)	1452
Water 'banking' in Fergana valley aquifers—A solution to water allocation in the Syrdarya river basin? A. Karimov (Tashkent, Uzbekistan), V. Smakhtin (Colombo, Sri Lanka), A. Mavlonov and I. Gracheva (Tashkent, Uzbekistan)	1461
Effects of transient subsurface waterlogging on root growth, plant biomass and yield of chickpea J.A. Palta (Wembley, Australia and Crawley, Australia), A. Ganjeali (Mashad, Iran), N.C. Turner and K.H.M. Siddique (Crawley,	1.450
Australia) A comparative analysis of water application and energy consumption at the irrigated field level	1469
T.M. Jackson (Wagga Wagga, Australia and Darling Heights, Australia), S. Khan (Paris, France) and M. Hafeez (Wagga Wagga, Australia and Darling Heights, Australia)	1477
Effects of irrigation strategies and soils on field-grown potatoes: Gas exchange and xylem [ABA] S.H. Ahmadi (Copenhagen, Denmark), M.N. Andersen, F. Plauborg, R.T. Poulsen (Aarhus, Denmark), C.R. Jensen (Copenhagen, Denmark), A.R. Sepaskhah (Shiraz, Iran) and S. Hansen (Copenhagen, Denmark)	1486
Effects of precipitation patterns and temperature trends on soil water available for vineyards in a Mediterranean climate area M.C. Ramos and J.A. Martínez-Casasnovas (Lleida, Spain)	1495
Spatial variation of climatology monthly crop reference evapotranspiration and sensitivity coefficients in Shiyang river basin of northwest China	
X. Zhang, S. Kang (Beijing, China), L. Zhang (Canberra, Australia) and J. Liu (Beijing, China)	1506
Partial rootzone irrigation increases water use efficiency, maintains yield and enhances economic profit of cotton in arid area L-S. Tang, Y. Li (Xinjiang, PR China) and J. Zhang (Hong Kong, PR China)	1527
Contribution of runoff to incomplete off season soil water refilling in a Mediterranean vineyard R. Gaudin (Montpellier, France), F. Celette (Lyon, France) and C. Gary (Montpellier, France)	1534
Land use and land cover classification in the irrigated Indus Basin using growth phenology information from satellite data to support water management analysis	
M.J.M. Cheema (Delft, The Netherlands) and W.G.M. Bastiaanssen (Delft, The Netherlands and Wageningen, The Netherlands) Corn crop response under managing different irrigation and salinity levels	1541
K.H. Amer (Menofia, Egypt) Irrigation restriction effects on water use efficiency and osmotic adjustment in Aloe Vera plants (Aloe barbadensis Miller)	1553
J. Delatorre-Herrera, I. Delfino (Iquique, Chile), C. Salinas, H. Silva and L. Cardemil (Chile) Combined effect of technical, meteorological and agronomical factors on solid-set sprinkler irrigation: I. Irrigation performance and soil water recharge in alfalfa and maize	1564
I. Sanchez, N. Zapata and J.M. Faci (Zaragoza, Spain) Water stress effects on growth, development and yield of opium poppy (<i>Papaver somniferum</i> L.)	1571
A. Mahdavi-Damghani (Tehran, Iran and Cordoba, Spain), E. Kamkar (Cordoba, Spain and Gorgan, Iran), M.J. Al-Ahmadi (Cordoba, Spain and Birjand, Iran), L. Testi (Cordoba, Spain), F.J. Muñoz-Ledesma (Madrid, Spain) and F.J. Villalobos (Cordoba, Spain and	1500
Cordoba, Spain)	1582
I. Sanchez, N. Zapata and J.M. Faci (Zaragoza, Spain) Potential risk of calcium carbonate precipitation in agricultural drain envelopes in arid and semi-arid areas M. Ghobadi Nia (Shahrekord, Iran), H. Rahimi, T. Sohrabi (Karaj, Iran), A. Naseri (Ahvaz, Iran) and H. Tofighi (Karaj, Iran)	1591
Access to groundwater and agricultural production in China L. Zhang, J. Wang, J. Huang (Beijing, China), Q. Huang (Saint Paul, MN, USA) and S. Rozelle (Stanford, CA, USA)	1609
A global benchmark map of water productivity for rainfed and irrigated wheat S.J. Zwart (Wageningen, Delft, The Netherlands and Cotonou, Benin), W.G.M. Bastiaanssen (Wageningen, Delft, The Netherlands),	1003
C. de Fraiture and D.J. Molden (Colombo, Sri Lanka) WATPRO: A remote sensing based model for mapping water productivity of wheat	1617
S.J. Zwart (Wageningen, Delft, The Netherlands and Cotonou, Benin), W.G.M. Bastiaanssen (Wageningen, Delft, The Netherlands), C. de Fraiture and D.J. Molden (Colombo, Sri Lanka)	1628

Effect of plastic mulch on water flow and herbicide transport in soil cultivated with pineapple crop: A modeling study J. Dusek (Prague, Czech Republic), C. Ray, G. Alavi (Honolulu, HI, USA), T. Vogel and M. Sanda (Prague, Czech Republic) Simulation of bromide and nitrate leaching under heavy rainfall and high-intensity irrigation rates in North China Plain	1637
H. Wang, X. Ju (Beijing, PR China), Y. Wei (Victoria, Australia), B. Li, L. Zhao and K. Hu (Beijing, PR China)	1646
S. Sarkar, M. Biswas (Mohanpur, India), S.B. Goswami (Gayeshpur, India) and P.K. Bandyopadhyay (Mohanpur, India)	1655
S. Lecina, D. Isidoro, E. Playán and R. Aragüés (Zaragoza, Spain)	1663
Q. Li (Shijiazhuang, PR China and Tai'an, PR China), B. Dong, Y. Qiao, M. Liu (Shijiazhuang, PR China) and J. Zhang (Tai'an, PR China) Sediment production and water quality of watersheds with contrasting land use in Navarre (Spain) J. Casalí, R. Giménez, J. Díez, J. Álvarez-Mozos, J. Del Valle de Lersundi, M. Goñi, M.A. Campo, Y. Chahor, R. Gastesi and J. López	1676
(Navarra, Spain) Amelioration of salt stress by irrigation management in pepper plants grown in coconut coir dust	1683
J.S. Rubio, F. Rubio, V. Martínez and F. García-Sánchez (Murcia, Spain) Soil water storage and drainage under cotton-based cropping systems in a furrow-irrigated Vertisol	1695
N.R. Hulugalle, T.B. Weaver and L.A. Finlay (Narrabri, Australia)	1703
VOLUME 97 ISSUE 11 1 NOVEMBE	R 2010
Research Papers	
Estimation of irrigation requirement for sustainable water resources reallocation in North China Y. Yang, Y. Yang, J.P. Moiwo and Y. Hu (Shijiazhuang, China)	1711
Phosphorus availability in sediments from a tidal river receiving runoff water from agricultural fields	1/11
Y.G. Yang (Fort Pierce, FL, USA and Guiyang, China), Z.L. He, Y. Lin and P.J. Stoffella (Fort Pierce, FL, USA)	1722
G. Heuvelmans (Brussel, Belgium) . Effects of elevated CO ₂ concentration on growth and water use efficiency of winter wheat under two soil water regimes	1731
Y. Qiao (Shijiazhuang, PR China), H. Zhang (Linhai Zhejiang, PR China), B. Dong, C. Shi, Y. Li, H. Zhai (Shijiazhuang, PR China) and M. Liu (Shijiazhuang, PR China) WaLIS—A simple model to simulate water partitioning in a crop association: The example of an intercropped vineyard	1742
F. Celette (Lyon, France and Montpellier, France), A. Ripoche and C. Gary (Montpellier, France)	1749
Impact of global warming on cowpea bean cultivation in northeastern Brazil V. de P.R. Silva, J.H.B.C. Campos, M.T. Silva and P.V. Azevedo (Campina Grande, Brazil)	1760
Using the dual approach of FAO-56 for partitioning ET into soil and plant components for olive orchards in a semi-arid region S. Er-Raki (Marrakech, Morocco), A. Chehbouni, G. Boulet (Toulouse, France) and D.G. Williams (Laramie, WY, USA)	1769
Monitoring and modelling draining and resident soil water nitrate concentrations to estimate leaching losses M. van der Laan (Pretoria, South Africa), R.J. Stirzaker (Pretoria, South Africa and Australia), J.G. Annandale (Pretoria, South Africa),	
K.L. Bristow (Pretoria, South Africa and Australia) and C.C. du Preez (Bloemfontein, South Africa) Infrared canopy temperature of early-ripening peach trees under postharvest deficit irrigation	1779
D. Wang and J. Gartung (Parlier, CA, USA)	1787
Pricing of irrigation water under alternative charging methods: Possible shortcomings of a volumetric approach G. Dono, L. Giraldo and S. Severini (Viterbo, Italy)	1795
Effects of drip irrigation systems on the recovery of dissolved oxygen from hypoxic water J.F. Maestre-Valero and V. Martínez-Alvarez (Cartagena, Spain)	
Efficacy of constructed wetlands for removal of bacterial contamination from agricultural return flows F.J. Díaz, A.T. C'Geen and R.A. Dahlgren (Davis, CA, USA)	
New approach for olive trees irrigation scheduling using trunk diameter sensors	
A. Moriana, I.F. Girón, M.J. Martín-Palomo (Sevilla, Spain), W. Conejero, M.F. Ortuño, A. Torrecillas (Murcia, Spain) and F. Moreno (Sevilla, Spain)	1822
Plant growth and yield responses in olive (Olea europaea) to different irrigation levels in an arid region of Argentina G. Correa-Tedesco, M.C. Rousseaux and P.S. Searles (La Rioja, Argentina)	1829
Test of AquaCrop model in simulating biomass and yield of water deficient and irrigated barley (Hordeum vulgare) A. Araya, S. Habtu, K.M. Hadgu, A. Kebede and T. Dejene (Mekelle, Ethiopia)	1838
The effect of water supply uncertainty on farmers' choice of crop portfolio D. Lavee (Upper Galilee, Israel)	
Use the Copper Gainer, Island: In N-fertilizer management on water quality trends at the watershed scale V. Nangia (Ottawa, Canada), P.H. Gowda (Bushland, TX, USA) and D.J. Mulla (Saint Paul, MN, USA)	
Modeling wheat yield and crop water productivity in Iran: Implications of agricultural water management for wheat production	
M. Faramarzi (Dübendorf, Switzerland and Isfahan, Iran), H. Yang (Dübendorf, Switzerland), R. Schulin (Zürich, Switzerland) and K.C. Abbaspour (Dübendorf, Switzerland)	186
Assessment of groundwater storage depletion by overexploitation using simple indicators in an irrigated closed aquifer basin in Iran M. Van Camp (Gent, Belgium), M. Radfar (Gent, Belgium and Shahrekord, Iran) and K. Walraevens (Gent, Belgium)	1876
Raising surface water levels in peat areas with dairy farming. Upscaling hydrological, agronomical and economic effects from farm-scale to local scale	
J.A. de Vos, P.J.T. van Bakel (Wageningen, The Netherlands), I.E. Hoving (Lelystad, The Netherlands) and R.A. Smidt (Wageningen, The	
Netherlands)	188

Variation in vineyard evapotranspiration in an arid region of northwest China B. Zhang, S. Kang (Beijing, China), F. Li (Nanning, China), L. Tong and T. Du (Beijing, China)	1898
An inexact two-stage water management model for planning agricultural irrigation under uncertainty W. Li, Y.P. Li, C.H. Li and G.H. Huang (Beijing, China) Soil properties and their spatial pattern in an oasis on the lower reaches of the Tarim River, northwest China	1905
H.H. Zhou, Y.N. Chen and W.H. Li (Urumqi, China) Effects of irrigation strategies and soils on field grown potatoes: Yield and water productivity	1915
S.H. Ahmadi (Copenhagen, Denmark and Aarhus, Denmark), M.N. Andersen, F. Plauborg, R.T. Poulsen (Aarhus, Denmark), C.R. Jensen (Copenhagen, Denmark), A.R. Sepaskhah (Shiraz, Iran) and S. Hansen (Copenhagen, Denmark)	1923
VOLUME 97 ISSUE 12 15 NOVEMBER	R 2010
Special Issue: Salinity Management in China	
Guest Editor: Jingsong Yang	
Preface	
J. Yang (Nanjing, China). Digital soil mapping to enable classification of the salt-affected soils in desert agro-ecological zones J. Sheng (Beijing, China and Urumqi, China), L. Ma (Beijing, China), P. Jiang (Urumqi, China), B. Li, F. Huang (Beijing, China) and H. Wu	1931
(Urumqi, China)	1944
R. Yu, T. Liu (Hohhot, PR China), Y. Xu (Nanjing, PR China), C. Zhu, Q. Zhang, Z. Qu, X. Liu and C. Li (Hohhot, PR China)	1952
R. Yao and J. Yang (Nanjing, China) Effect of brackish water irrigation and straw mulching on soil salinity and crop yields under monsoonal climatic conditions	1961
HC. Pang, YY. Li (Beijing, PR China), JS. Yang (Nanjing, PR China) and YS. Liang (Beijing, PR China)	1971
C.H. Yin, G. Feng (Urumqi, China and Beijing, China), F. Zhang (Beijing, China), C.Y. Tian (Urumqi, China) and C. Tang (Victoria, Australia)	1978
Use of saline aquaculture wastewater to irrigate salt-tolerant Jerusalem artichoke and sunflower in semiarid coastal zones of China Z. Gengmao (Nanjing, China), S.K. Mehta (Varanasai, India) and L. Zhaopu (Nanjing, China)	1987
Ameliorative effects of inoculation with the plant growth-promoting rhizobacterium <i>Pseudomonas</i> sp. DW1 on growth of eggplant (<i>Solanum melongena</i> L.) seedlings under salt stress Q. Fu, C. Liu, N. Ding, Y. Lin and B. Guo (Hangzhou, People's Republic of China)	1994
Evaluating salinity distribution in soil irrigated with saline water in arid regions of northwest China	
W. Chen (Beijing, China), Z. Hou (Xinjiang, China), L. Wu (Riverside, CA, USA), Y. Liang and C. Wei (Xinjiang, China)	2001
P. Zou (Nanjing, China and Hangzhou, China), J. Yang (Nanjing, China), J. Fu (Hangzhou, China), G. Liu and D. Li (Nanjing, China) An upscaling approach to simulate unsaturated flow in horizontally heterogeneous soils at field scale under flood irrigation	2009
M. Mao and L. Ren (Beijing, China)	2020
Contents of Volume 97	2029

